

What is claimed is:

1. A prosthetic device for implanting into a bone, comprising:
 - a body having an outer surface, including a first section which contacts the bone upon implantation;
 - 5 and a coating, covering at least said first section, containing living bone cells,
 - wherein when said device is implanted into bone, said living bone cells contact said bone to promote bone ingrowth between said device and said bone.
- 10 2. The device of claim 1, wherein said body is composed of titanium.
3. The device of claim 1, wherein said outer surface of said body is porous.
4. The device of claim 1, wherein said body is composed of a ceramic material.
- 15 5. The device of claim 1, wherein said body is composed of a hydroxyapatite-covered metal.
6. The device of claim 1, wherein at least said first section contains a textured surface.
7. The device of claim 6, wherein said textured surface comprises an array of beads.
- 20 8. The device of claim 6, wherein said textured surface comprises an array of fibrillar wires.
9. The device of claim 1, wherein said bone cells contain osteoblasts.
10. The device of claim 1, wherein said bone cells contain osteocytes.

11. The device of claim 1, wherein said coating contains a bone growth promoting substance.

12. The device of claim 11, wherein said bone growth promoting substance comprises at least one of the following substances: TGF- α , β 1,-2; EGF, IGF-5 1; PDGF; FGF; BMP-1 and VEGF.

13. A method of implanting a prosthetic device into a bone of a patient, comprising the steps of:

- a. harvesting bone cells from a patient;
- b. culturing the bone cells within a lab;
- c. growing the bone cells onto a prosthetic device;
- d. implanting the prosthetic device into the bone of the patient.

14. This method of claim 13, wherein the harvesting step further includes removing a piece of iliac crest bone from the patient.

15. The method of claim 14, wherein the harvesting step further includes treating the iliac crest bone to remove the cells.

16. The method of claim 13, wherein said cells may be osteoblasts, osteocytes, and stem cells.

17. The method of claim 13, wherein the culturing step includes adding a bone growth promoting substance to the culture medium.

20 18. A method of implanting a prosthetic device into the bone of a patient, comprising the steps of:

- a. harvesting bone cells from a patient;
- b. culturing the bone cells within a lab;
- c. coating a prosthetic device with the bone cell culture; and

d. implanting the prosthetic device into the patient immediately after coating.

19. The method of claim 18, wherein the culturing step includes adding a bone growth promoting substance to the culture medium.